Web-based Tools for Monitoring Drought Nationwide

- Phillip Pasteris
- USDA/NRCS
- National Water and Climate Center
- Portland, OR
- http://www.wcc.nrcs.usda.gov
- ppasteris@wcc.nrcs.usda.gov
- http://enso.unl.edu/monitor/index.html
- ftp://ftp.wcc.nrcs.usda.gov/pub/outgoing/crwmg.ppt

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What is the Drought Monitor?

- The Drought Monitor is a compendium of information used to assess drought.
- It provides a one-stop shopping mall to observe the many facets of drought and its impacts on the U.S.
- It is a consensus opinion of federal and academic scientists.
- The product will be refined over time as we find ways to make it better reflect the needs of decision makers who use the information.

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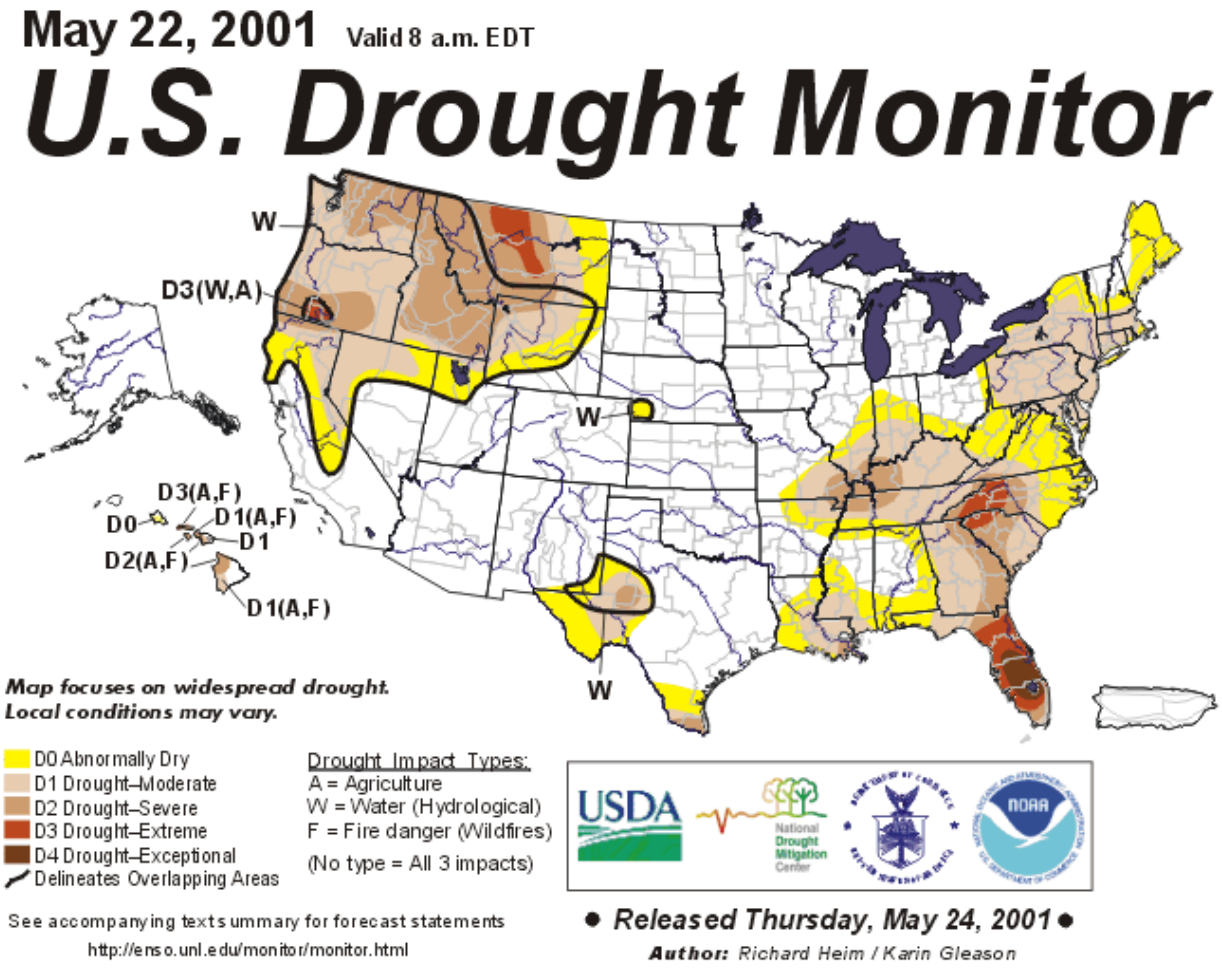
Drought Monitor Map



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Where do I Find it?

- http://enso.unl.edu/monitor/index.html
- Updated every Thursday at 830 am ET.

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How do you Assess Drought?

- Tracking drought blends science and art.
- No single definition of drought works for all circumstances
- People rely on drought indices to detect and measure droughts.
- No single index works under all circumstances.
- The Drought Monitor is a synthesis of multiple indices, outlooks and news accounts

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Federal Partners

- Joint Agricultural Weather Facility (U.S. Department of Agriculture)
- Department of Commerce/National Oceanic and Atmospheric Administration
- Climate Prediction Center (U.S. Department of Commerce/NOAA/National Weather Service)
- National Climatic Data Center (DOC/NOAA)

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Academic partner

- National Drought Mitigation Center (University of Nebraska-Lincoln)

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Other Partners

- U.S. Geological Survey (U.S. Department of Interior)
- National Water and Climate Center (USDA/Natural Resource Conservation Service)
- Climate Diagnostics Center (DOC/NOAA)
- Regional Climate Centers
- National Weather Service Hydrology (DOC/NOAA)
- State Climatologists
- Additional local, state and federal experts

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Key Audiences

- National Weather Service
- Farm Service Agency, U.S. Department of Agriculture
- State water agencies and other resource management institutions and organizations
- The Weather Channel and other specialized media general media and the general public

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What Tools Are Available?

- Palmer Drought Severity Index
- Crop Moisture Index
- Standardized Precipitation Index
- Drought Impacts Map
- Percent of Normal Rainfall
- Daily Streamflow

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What Tools Are Available?

- ✔ Seasonal Snowpack and Precipitation
- ✔ Water Supply Forecasts
- ✔ Surface Water Supply Index
- ✔ Soil Moisture
- ✔ Topsoil Moisture vs. 5 Year Mean
- ✔ Vegetation and Temperature Conditions
- ✔ Current and Forecast Precipitation

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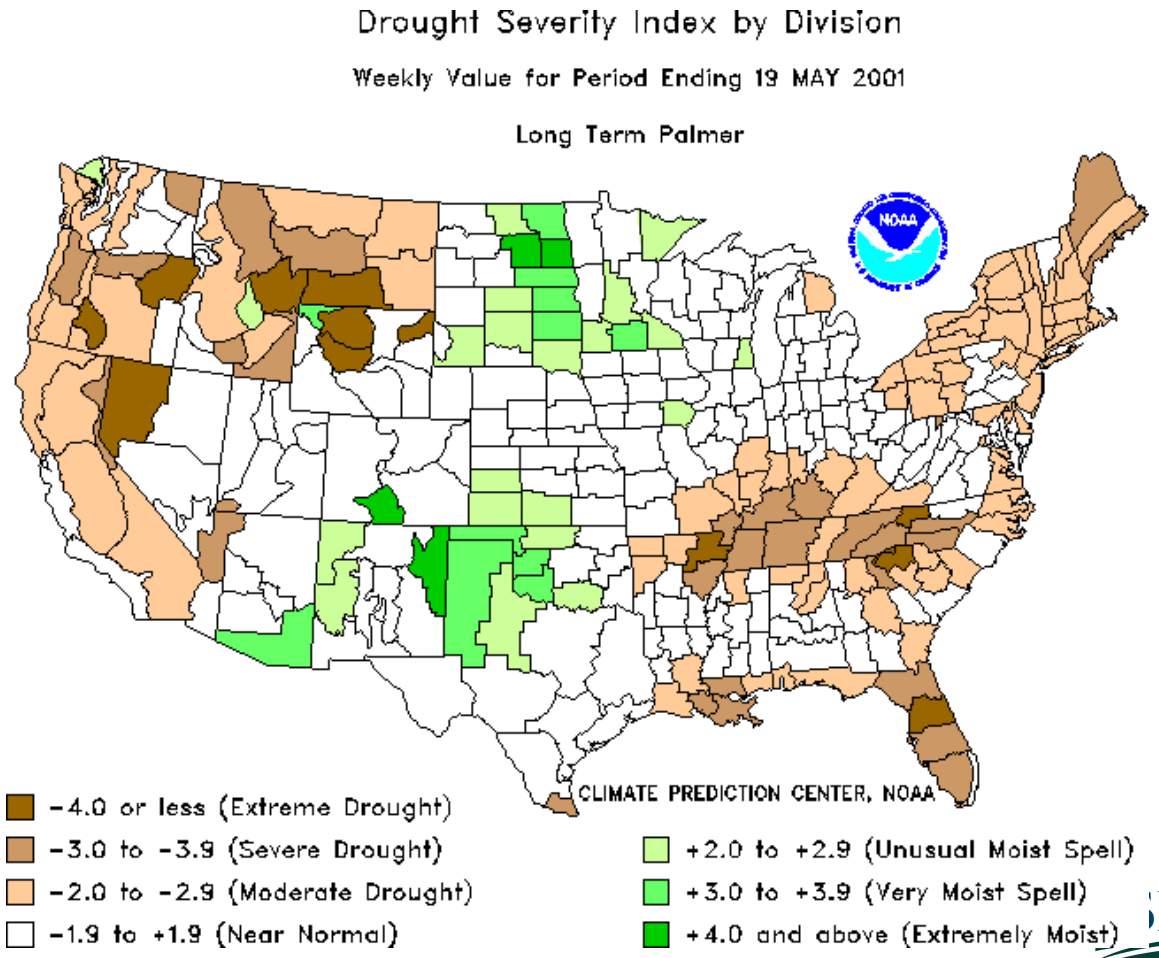
Palmer Drought


Drought Severity Index by Division
Weekly Value for Period Ending 19 MAY 2001
Long Term Palmer
NOAA
CLIMATE PREDICTION CENTER, NOAA
-4.0 or less (Extreme Drought)
-3.0 to -3.9 (Severe Drought)
-2.0 to -2.9 (Moderate Drought)
-1.9 to +1.9 (Near Normal)
+2.0 to +2.9 (Unusual Moist Spell)
+3.0 to +3.9 (Very Moist Spell)
+4.0 and above (Extremely Moist)

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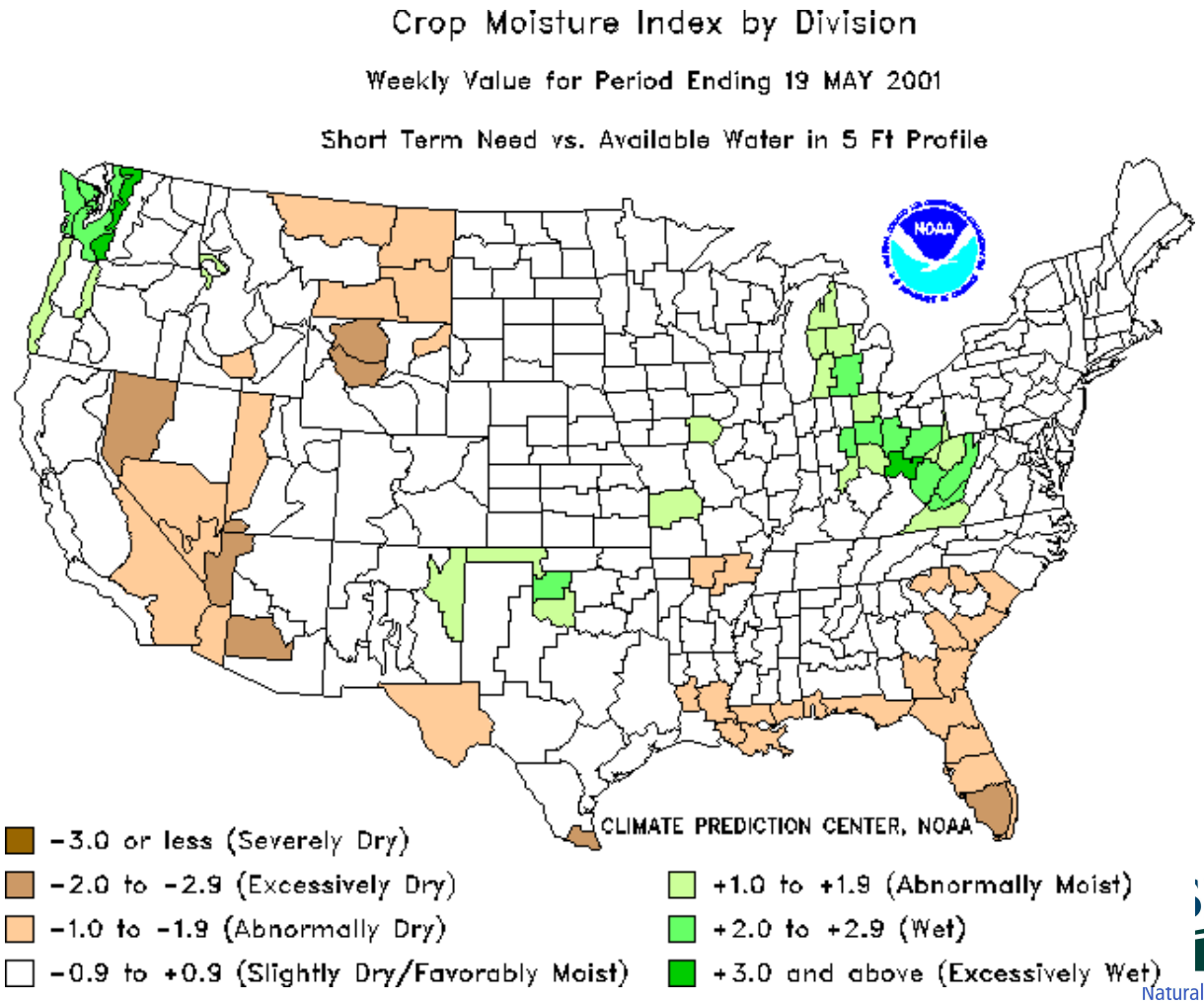
Crop Moisture Index


Crop Moisture Index by Division
Weekly Value for Period Ending 19 MAY 2001
Short Term Need vs. Available Water in 5 Ft Profile
NOAA
CLIMATE PREDICTION CENTER, NOAA
-3.0 or less (Severely Dry)
-2.0 to -2.9 (Excessively Dry)
-1.0 to -1.9 (Abnormally Dry)
-0.9 to +0.9 (Slightly Dry/Favorably Moist)
+1.0 to +1.9 (Abnormally Moist)
+2.0 to +2.9 (Wet)
+3.0 and above (Excessively Wet)

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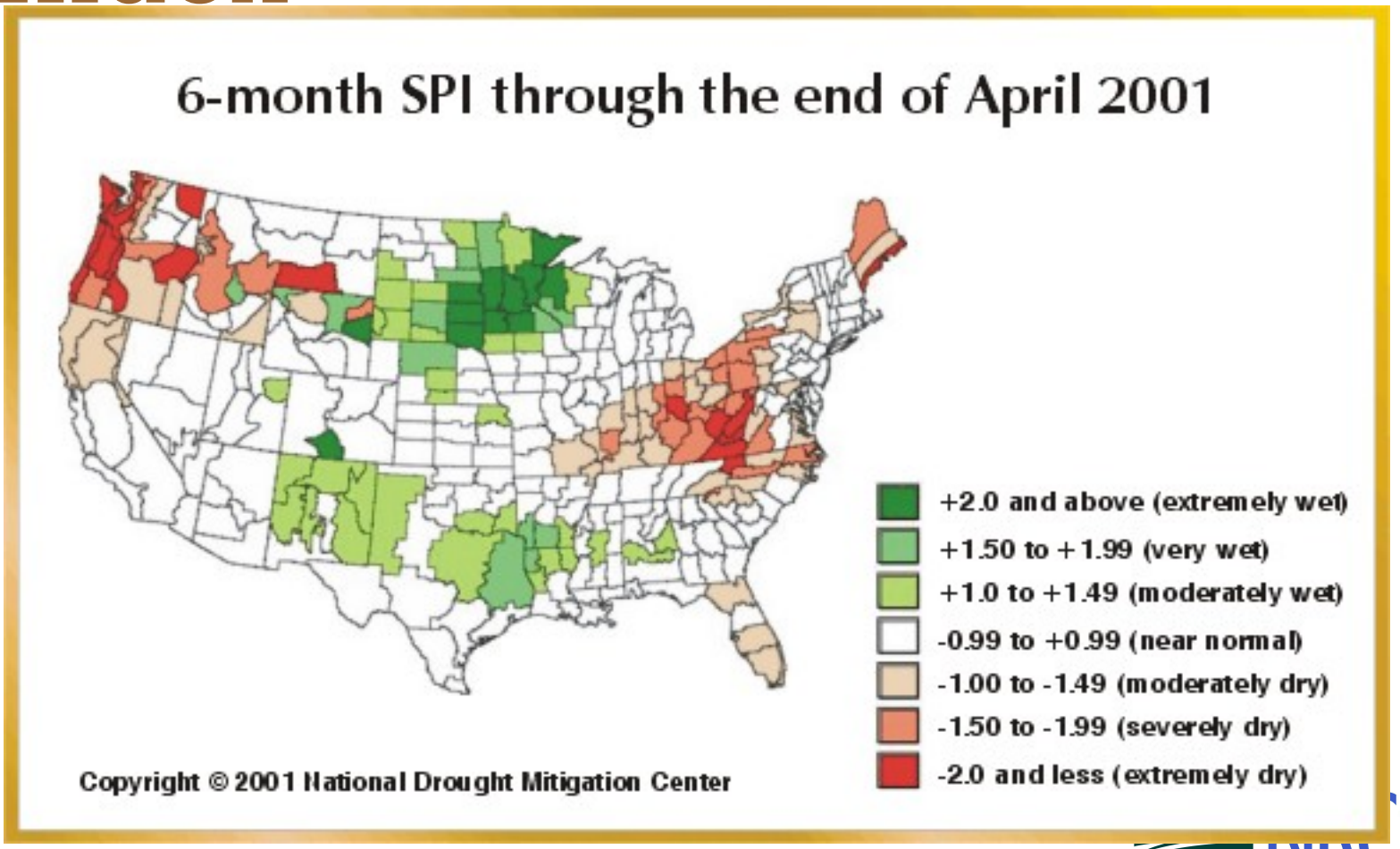
Standard Precipitation Index


6-month SPI through the end of April 2001
+2.0 and above (extremely wet)
+1.50 to +1.99 (very wet)
+1.0 to +1.49 (moderately wet)
-0.99 to +0.99 (near normal)
-1.00 to -1.49 (moderately dry)
-1.50 to -1.99 (severely dry)
-2.0 and less (extremely dry)
Copyright © 2001 National Drought Mitigation Center

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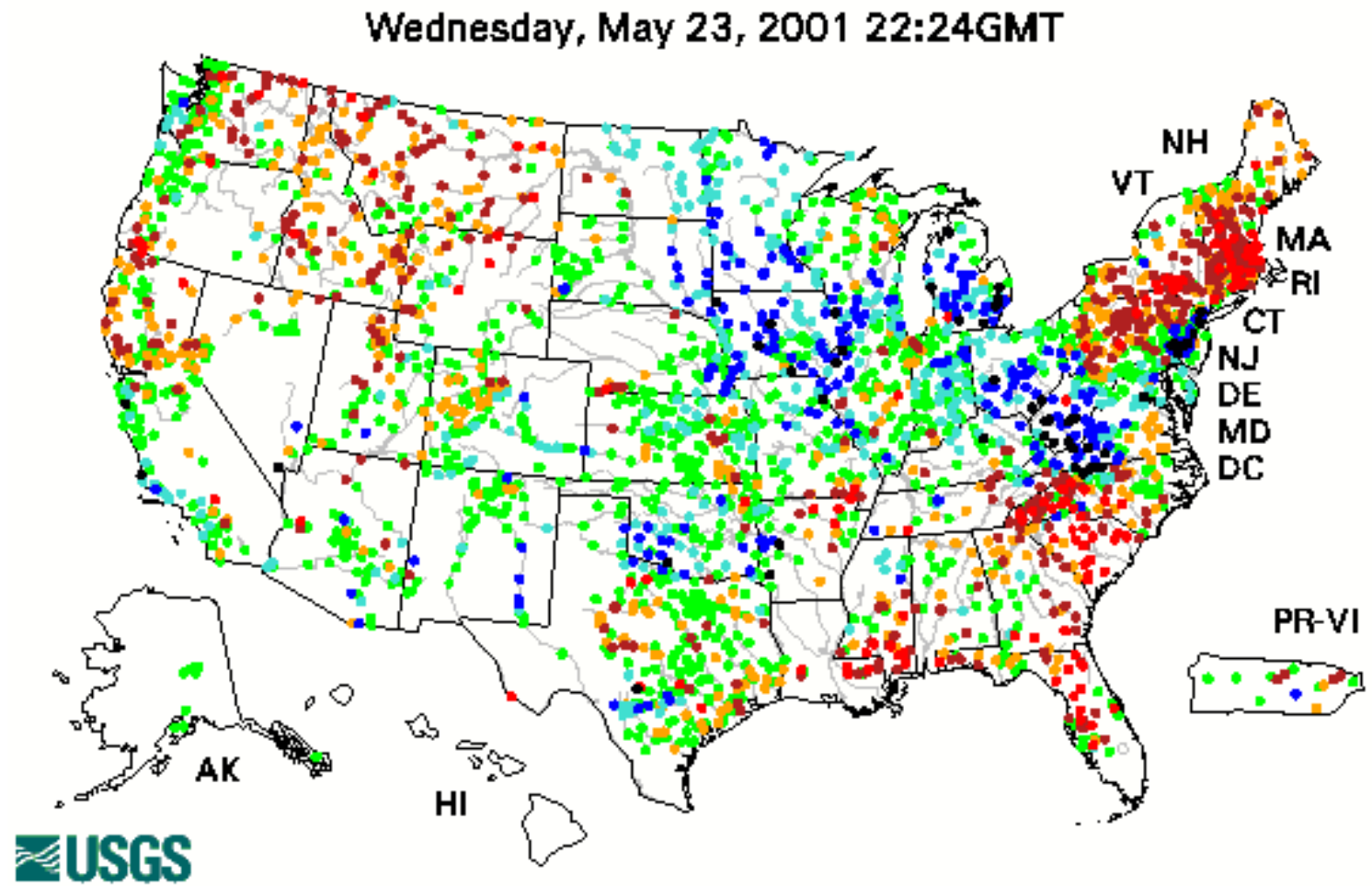
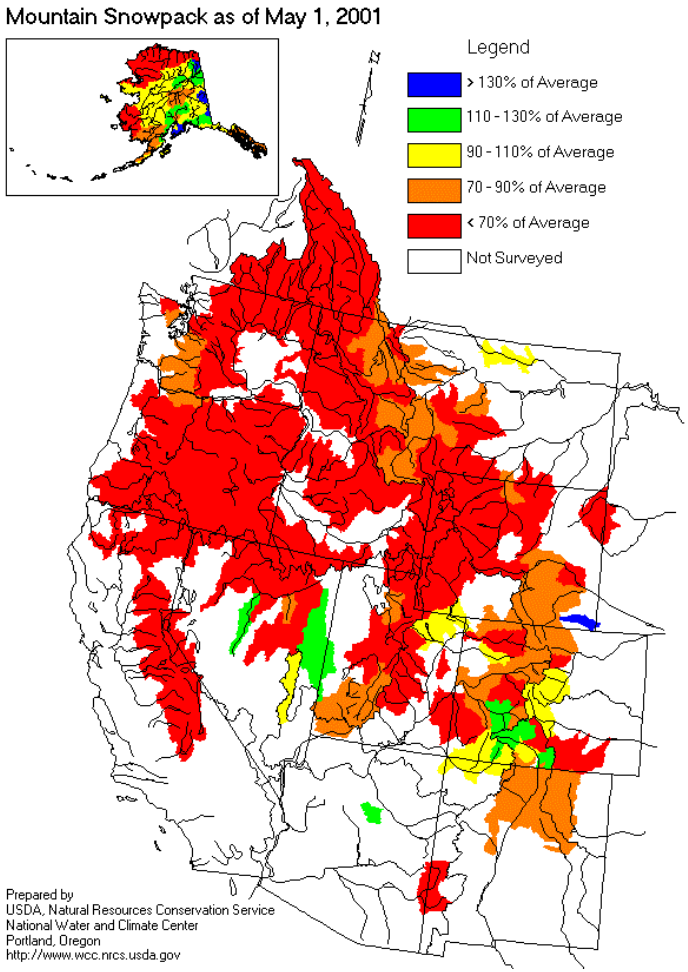
Daily Streamflow



Seasonal Snowpack



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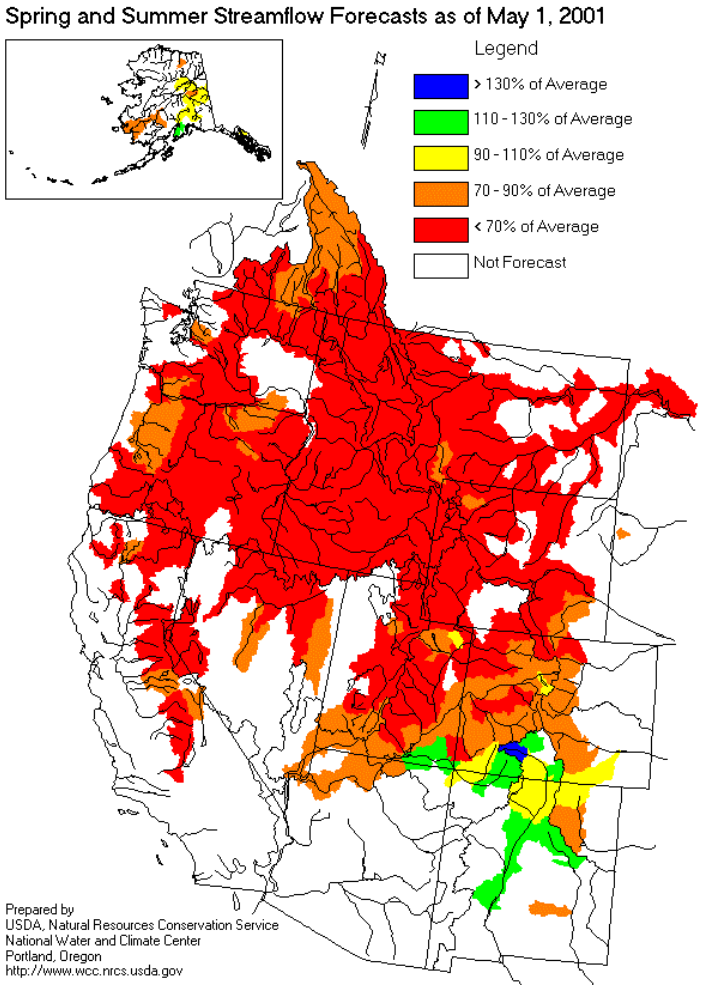
Water Supply Forecasts



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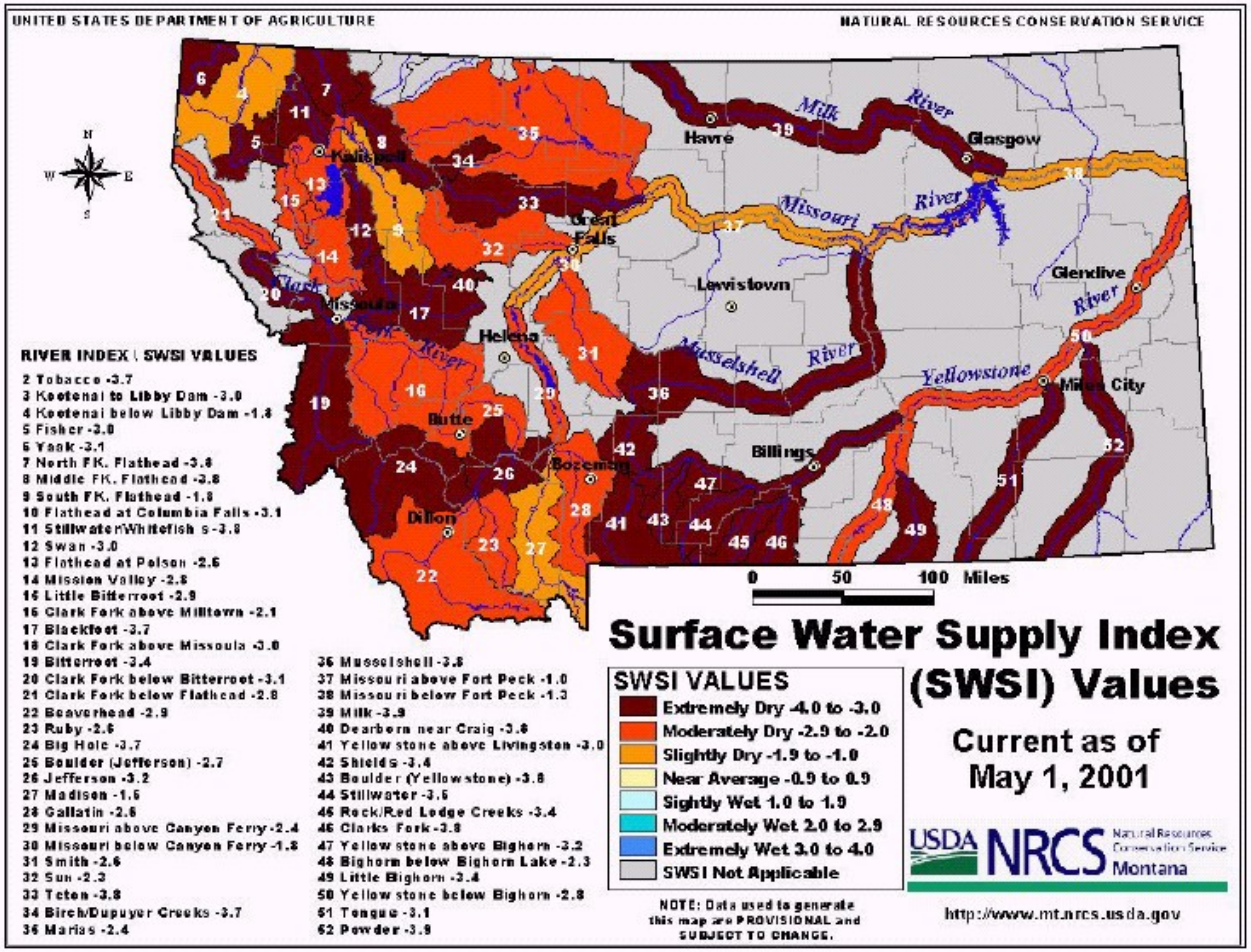
Surface Water Supply Index



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Drought Classifications

- Water (W), Agriculture (A), Wildfire Danger (F)
- Category, Description, Possible Impacts
- D0, Abnormally Dry, Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered.
- D1, Moderate Drought, Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested

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Drought Classifications

- D2, Severe Drought, Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed
- D3, Extreme Drought, Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions
- D4, Exceptional Drought, Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies

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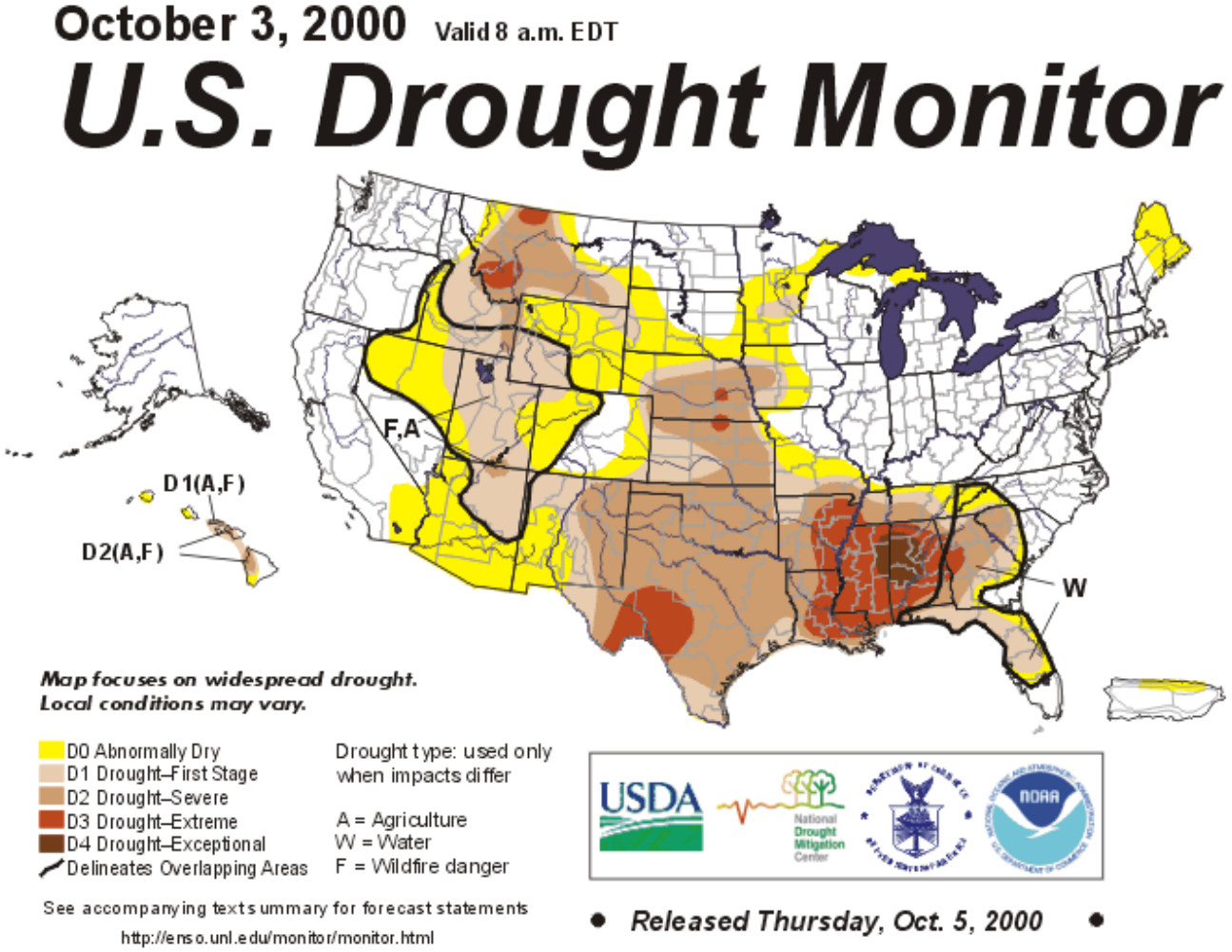
October 2000



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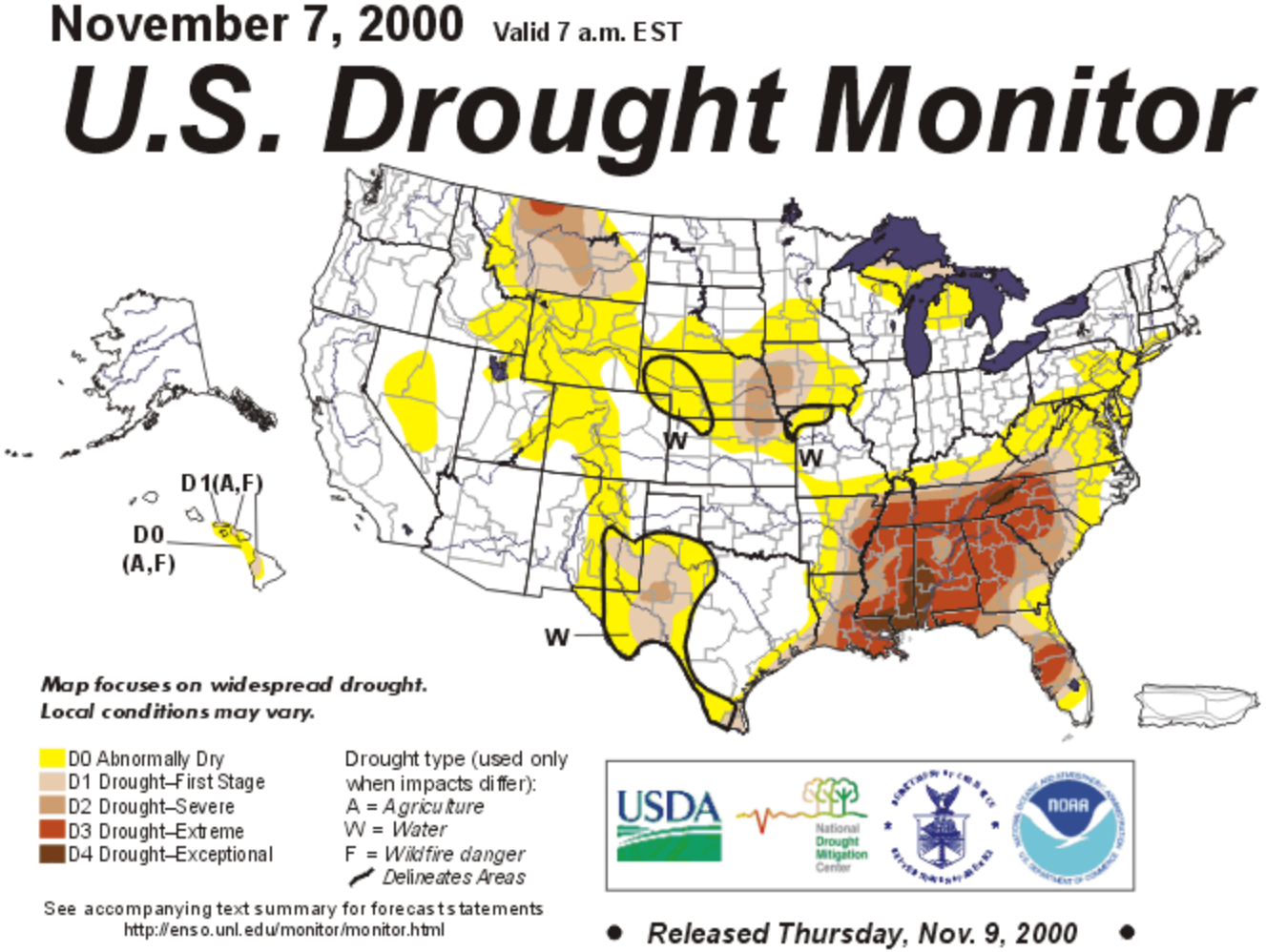

NRCS
Conservation Service

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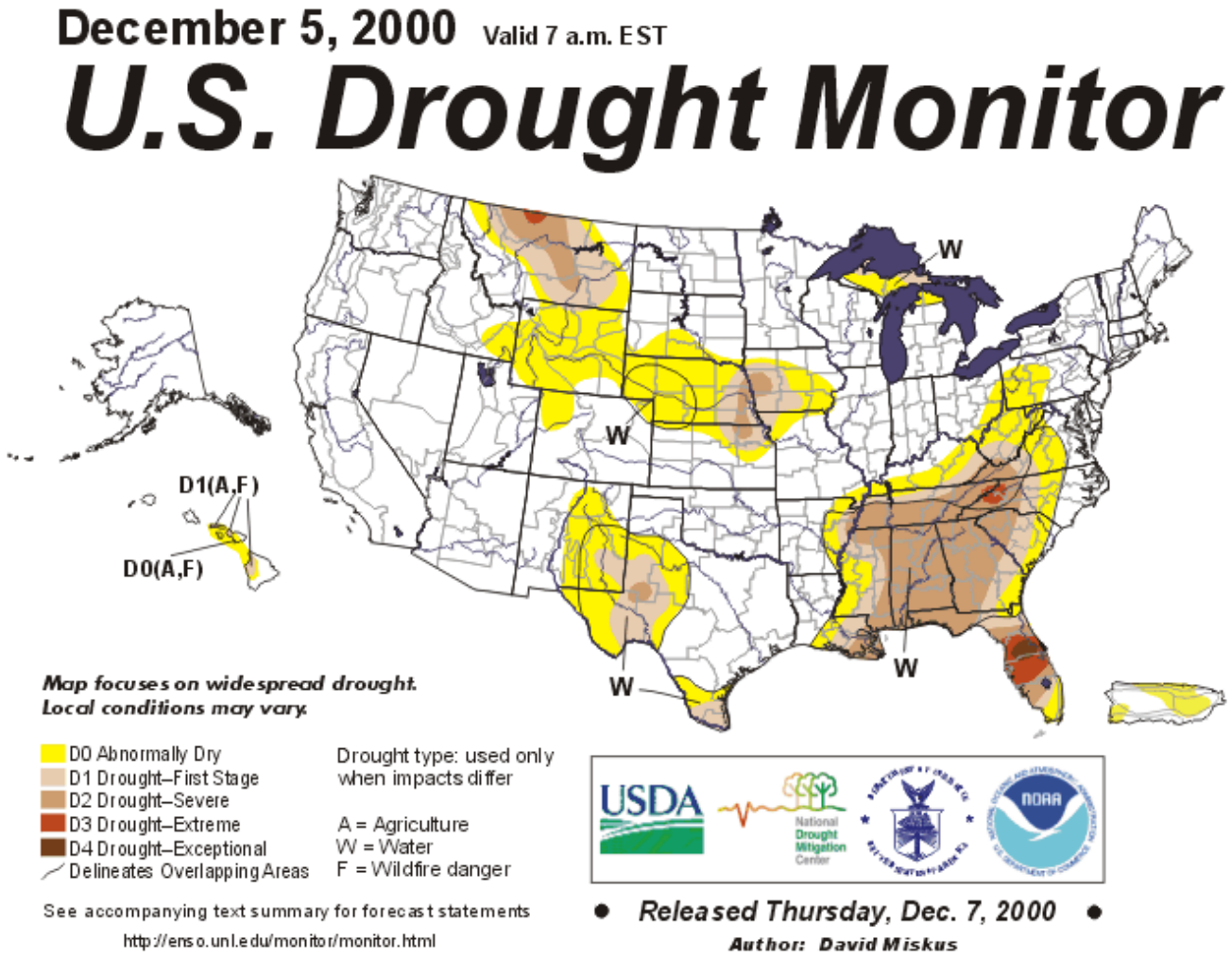

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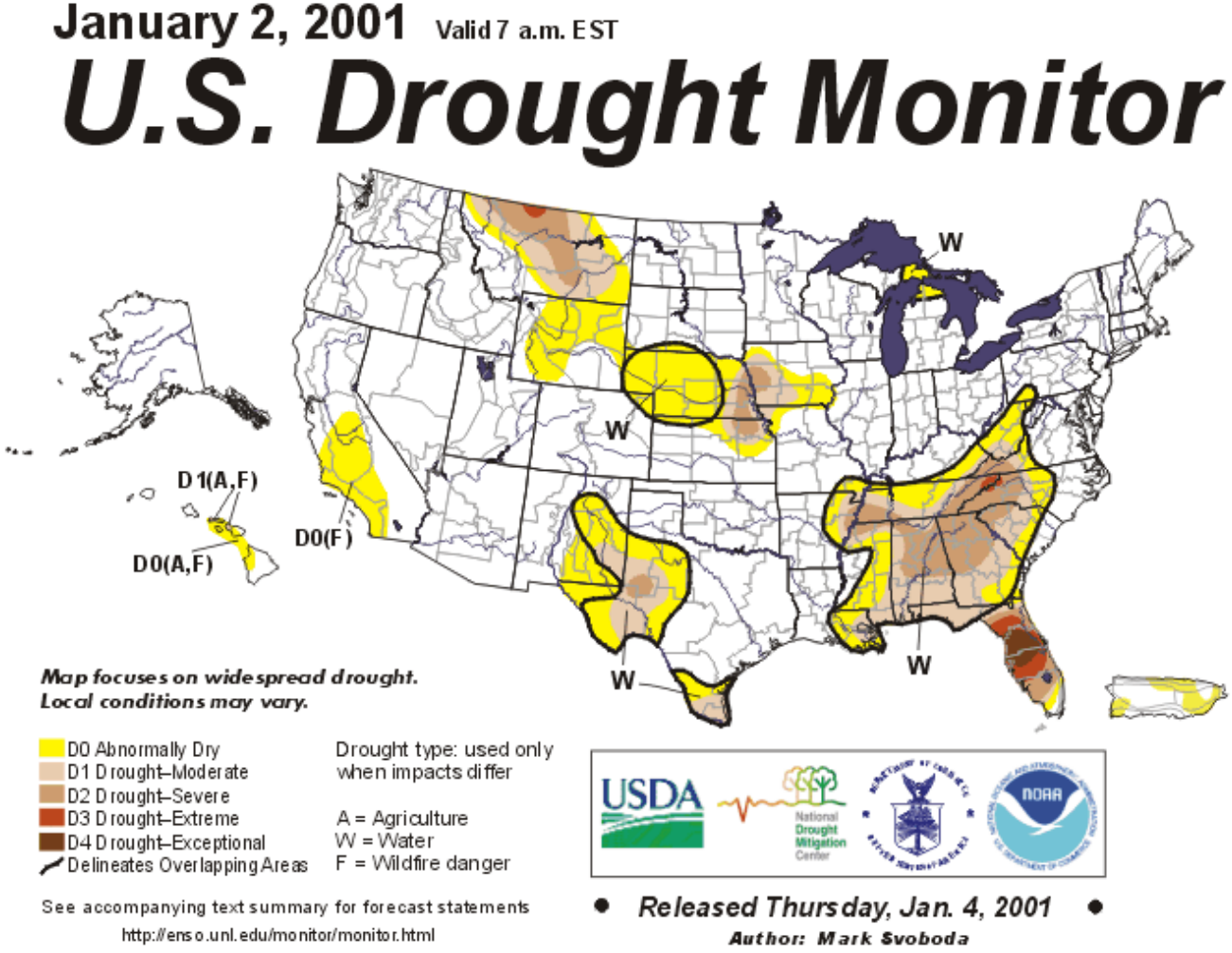
January 2001



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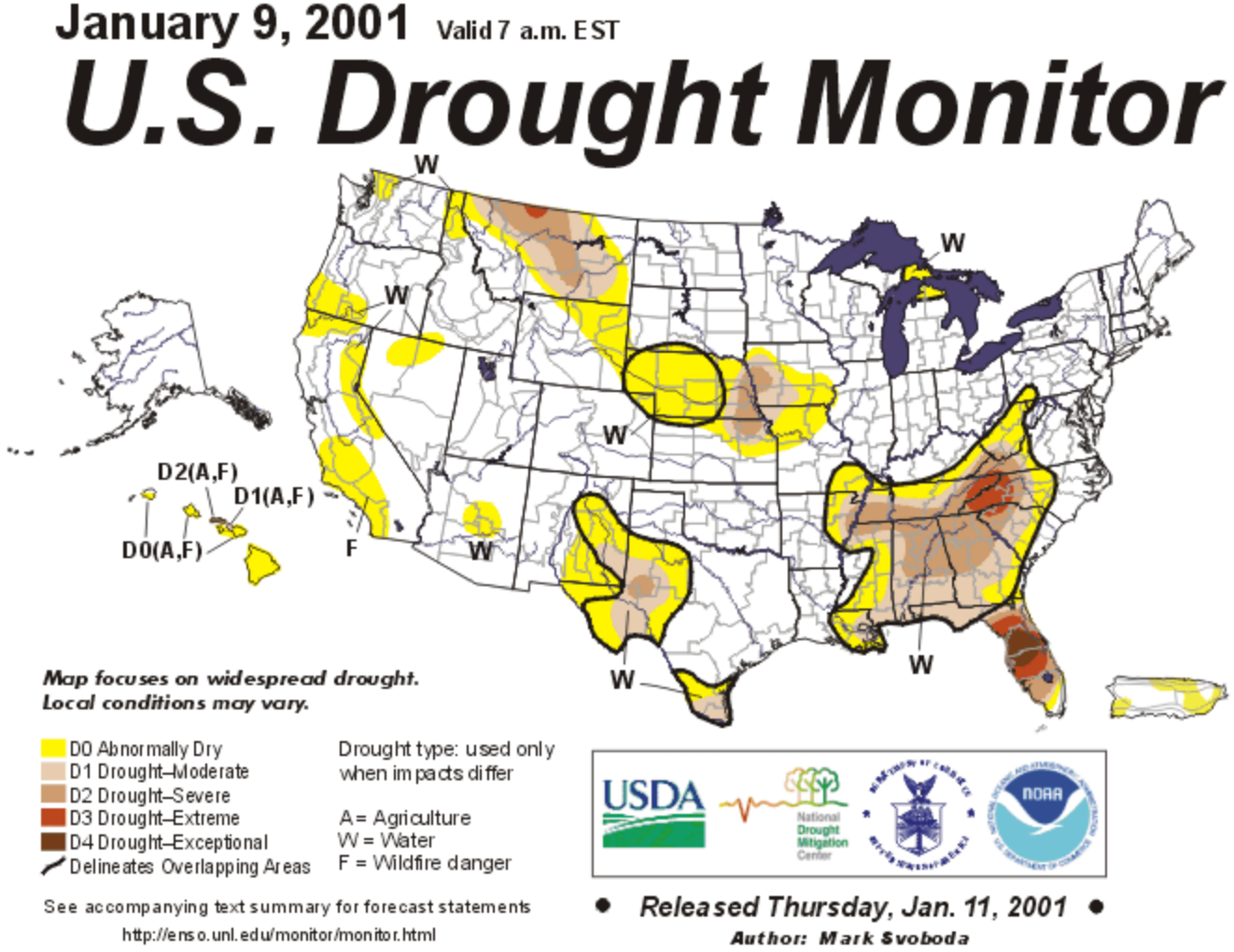

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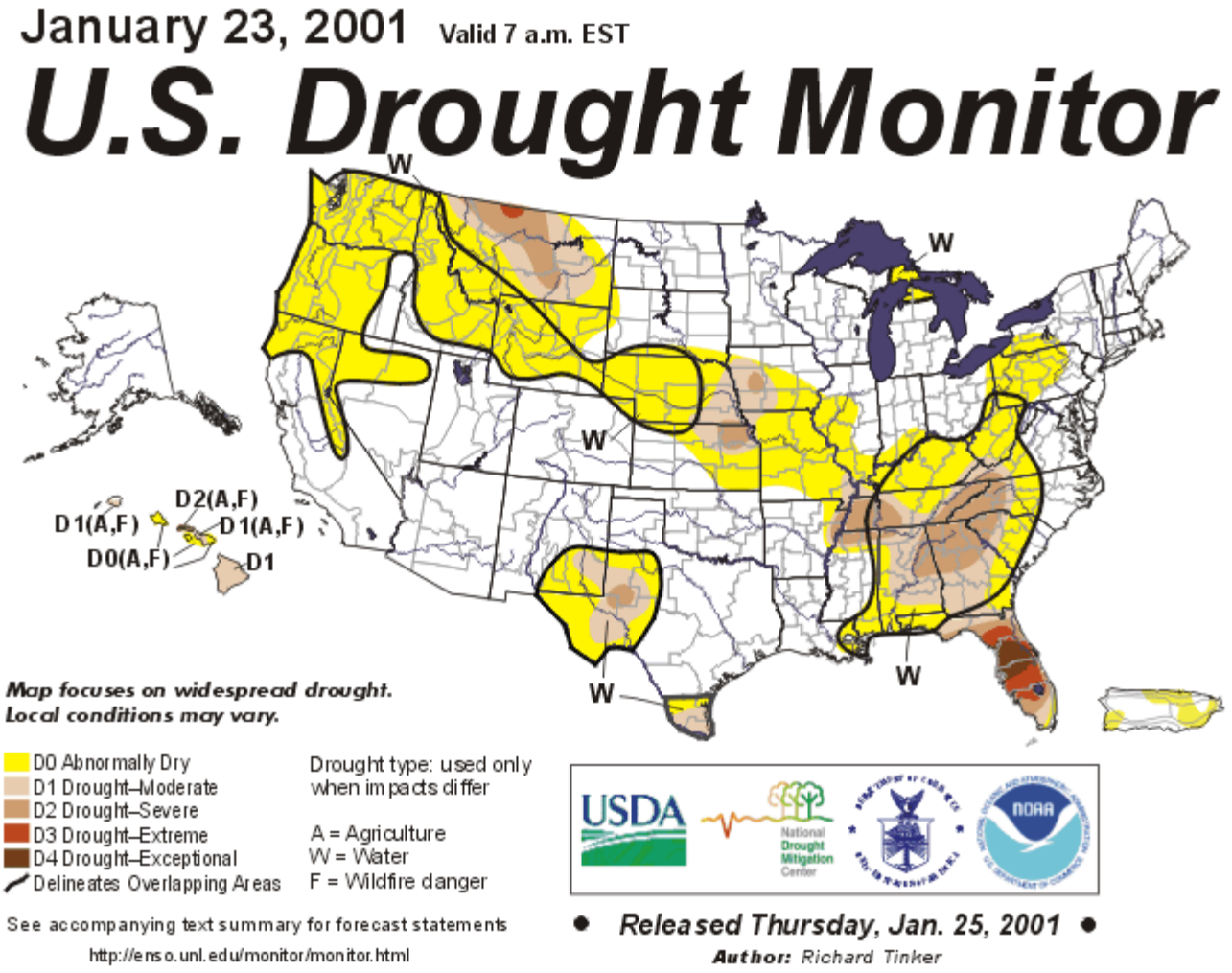

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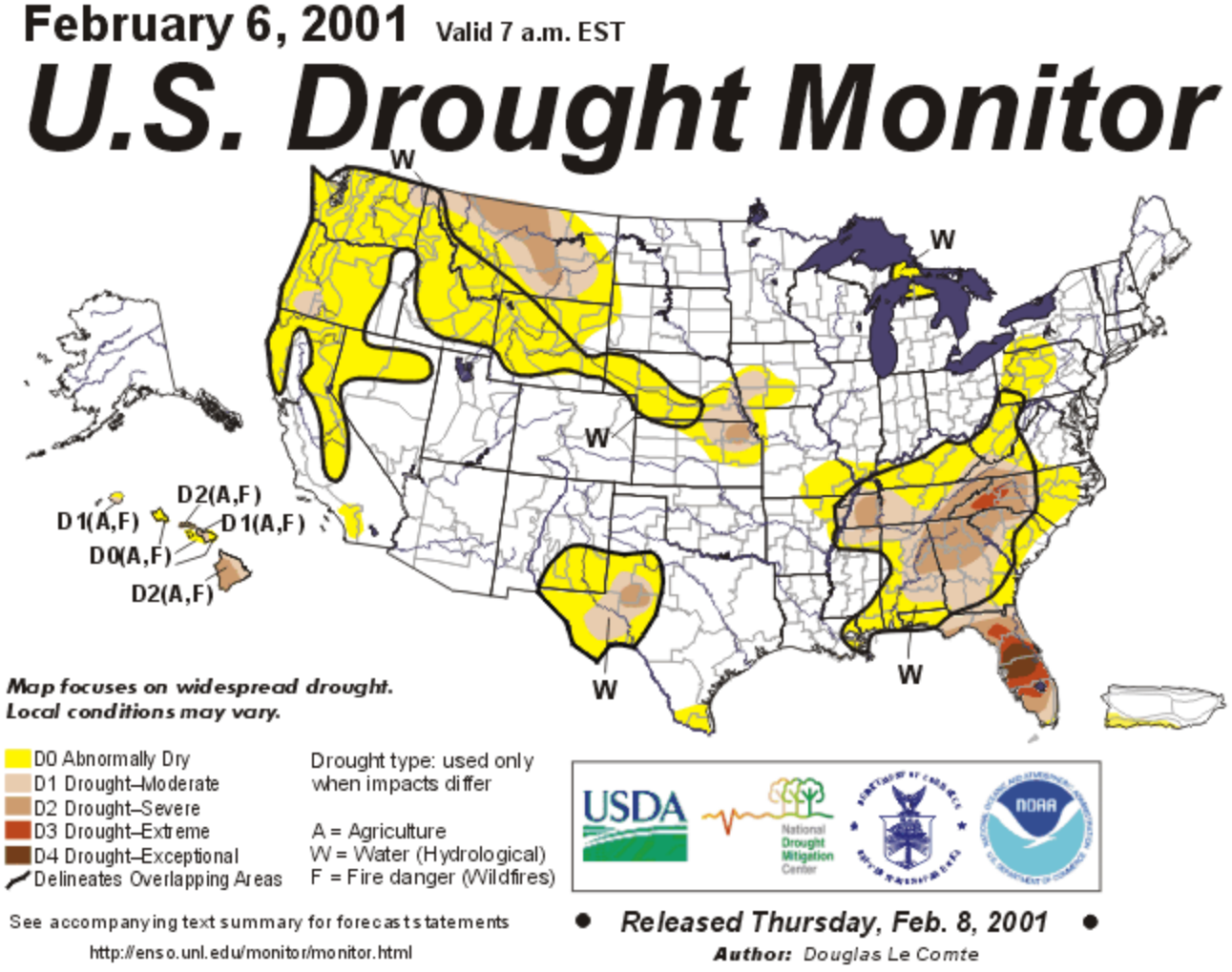

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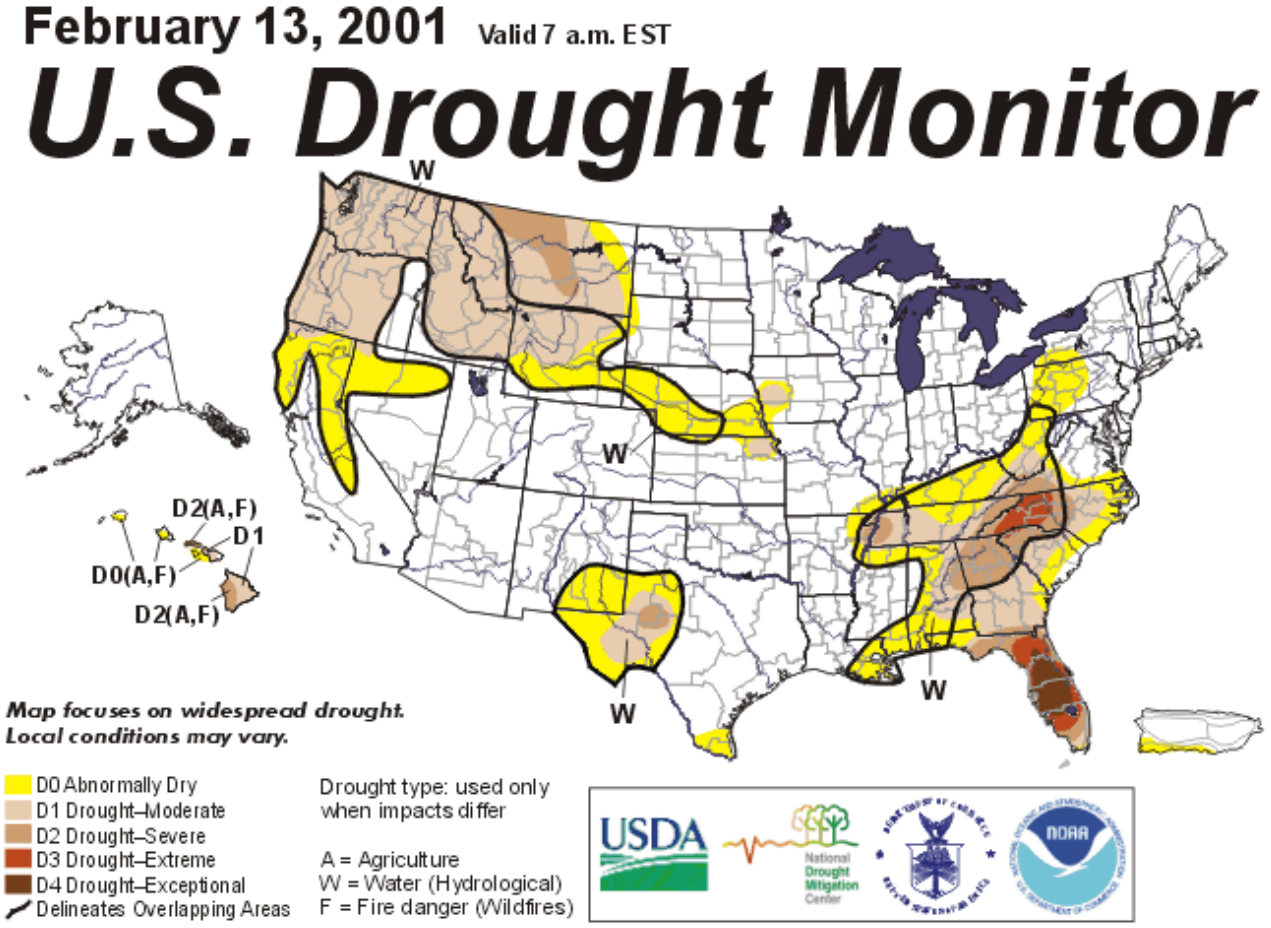

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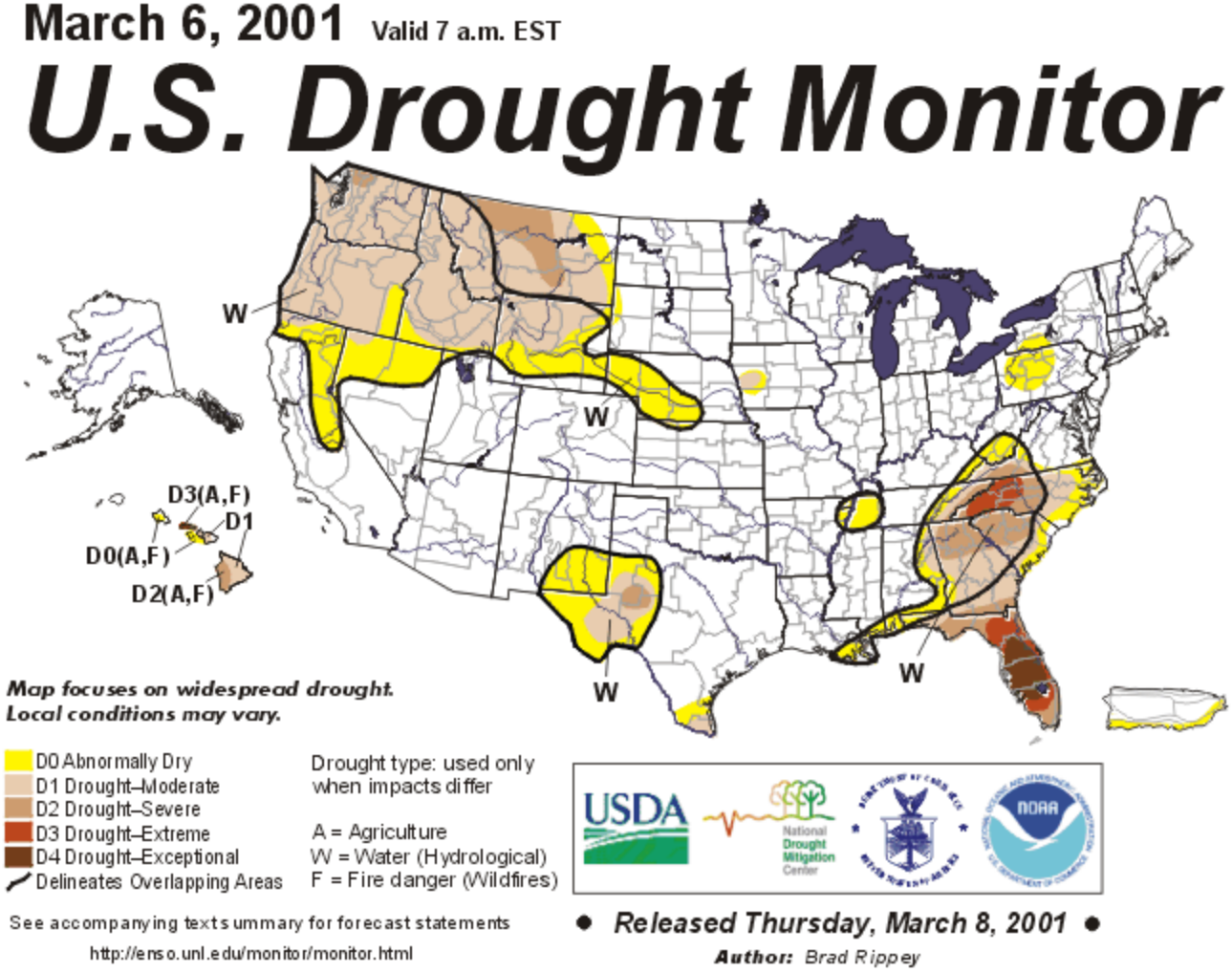

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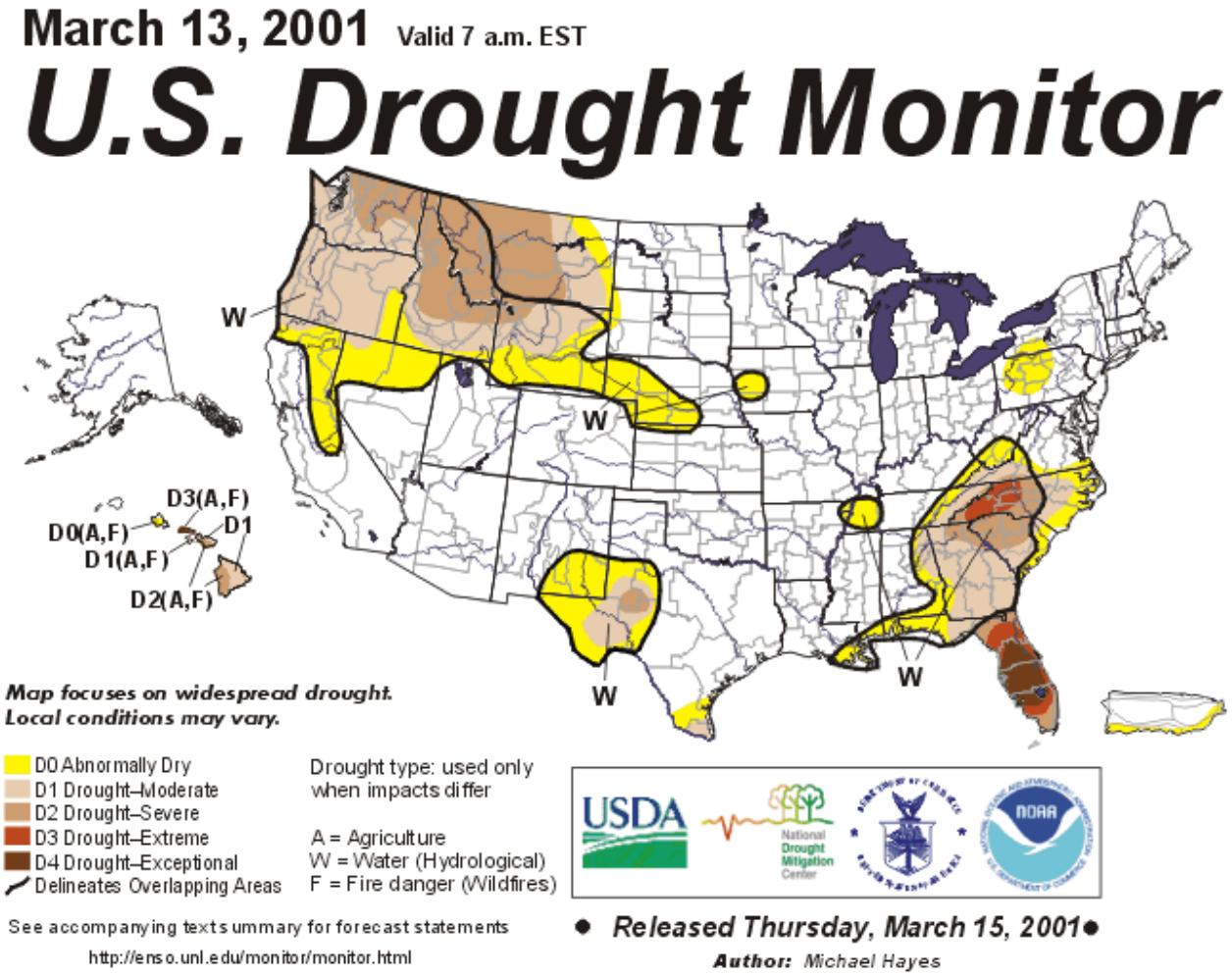
March 2001



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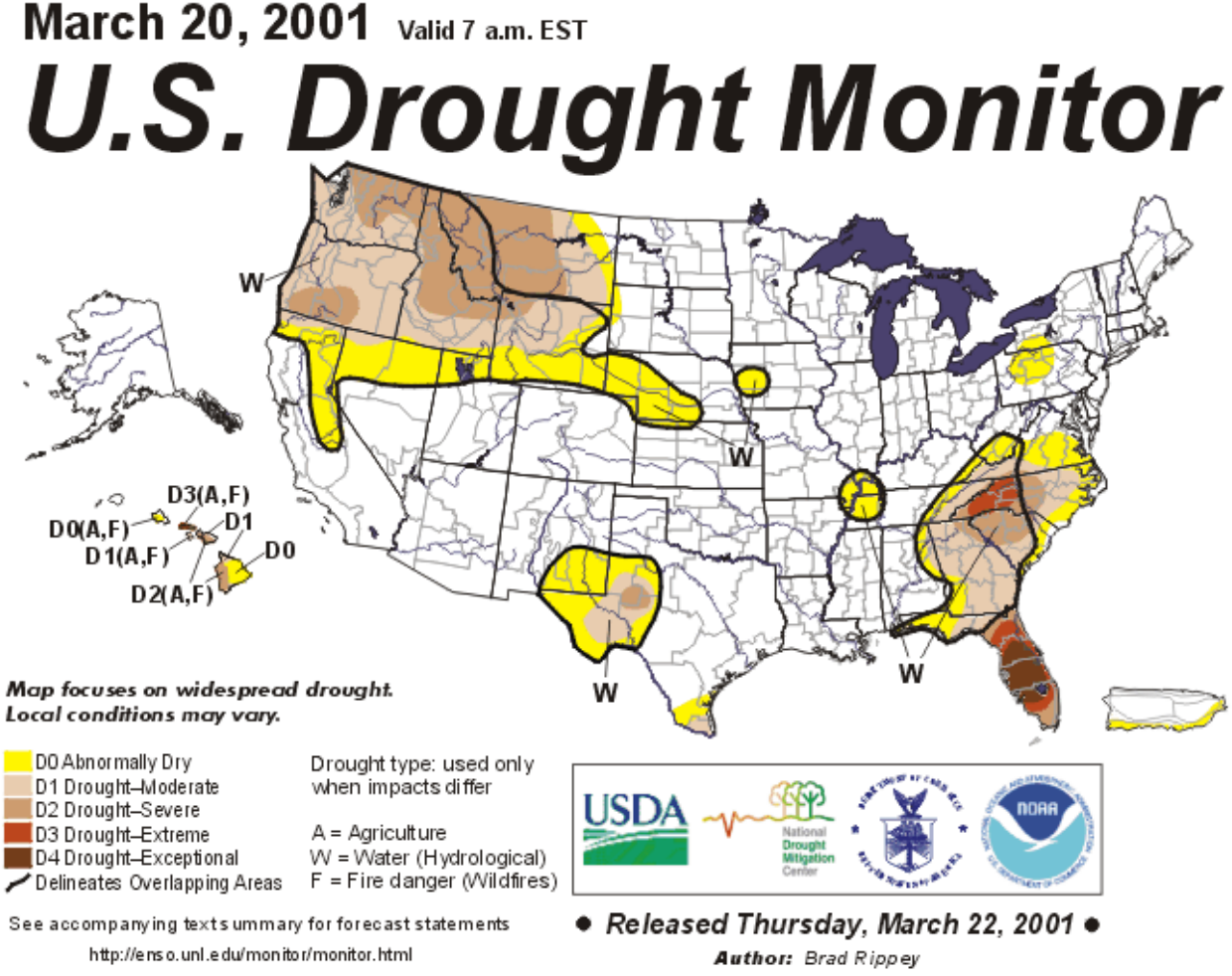

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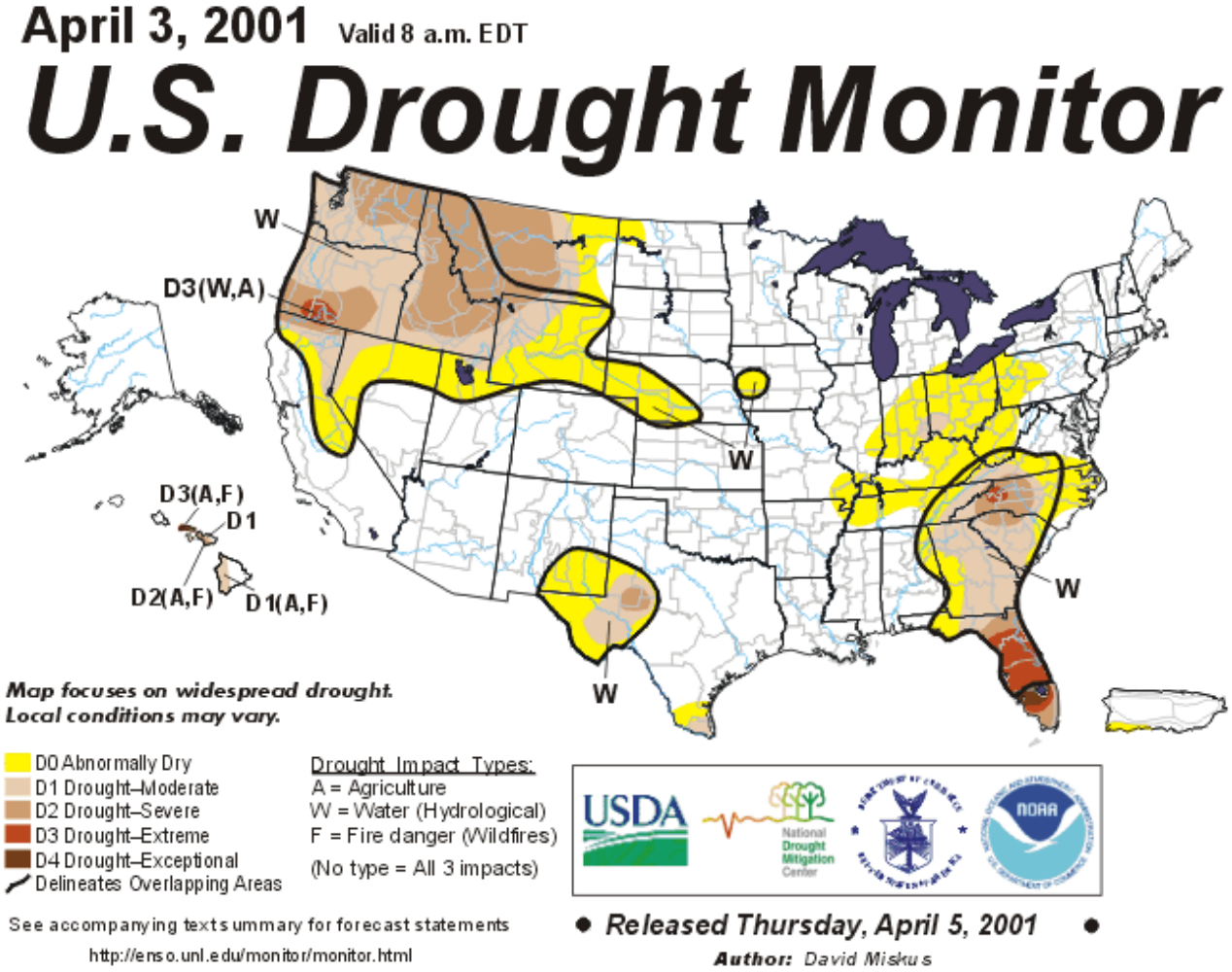

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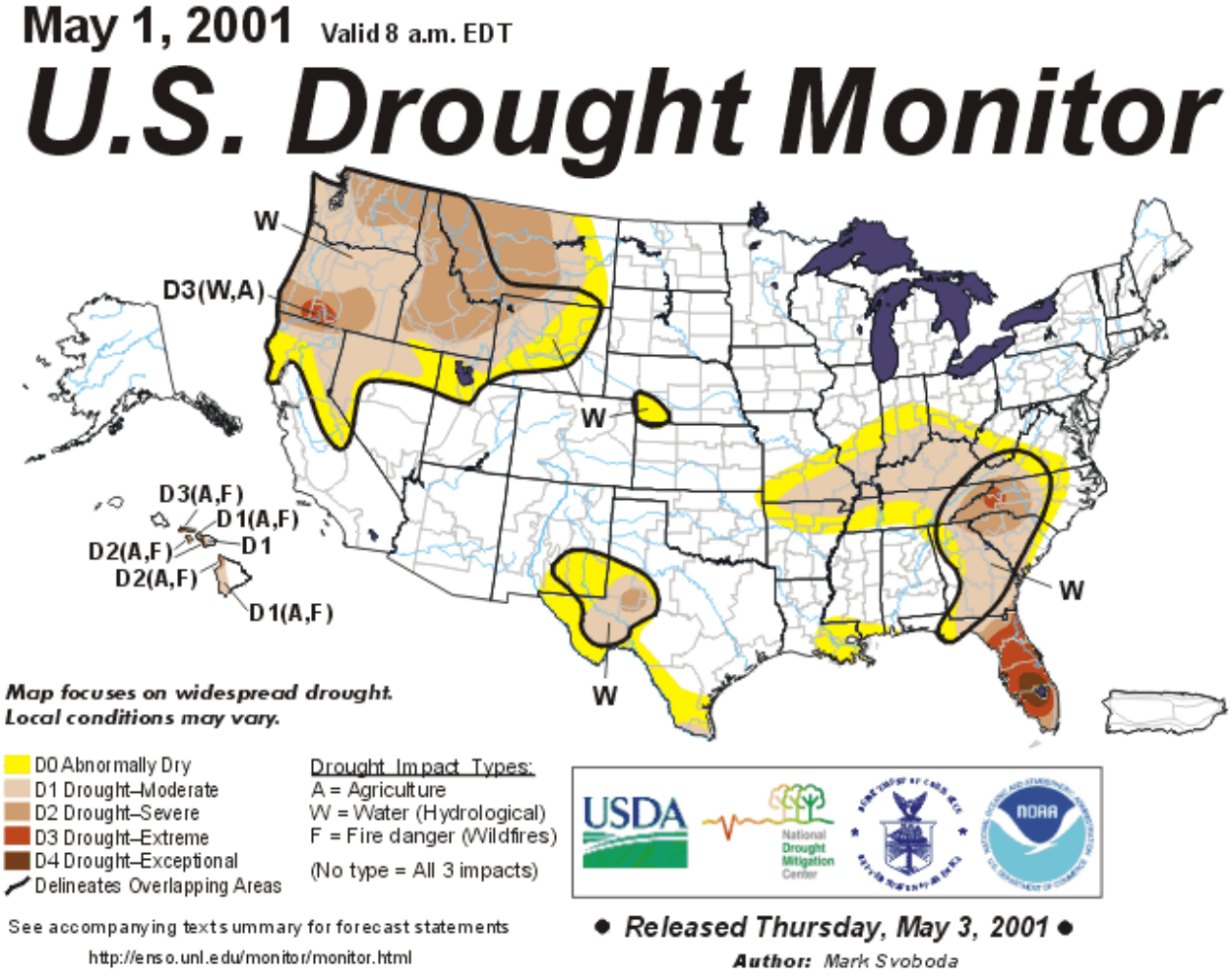

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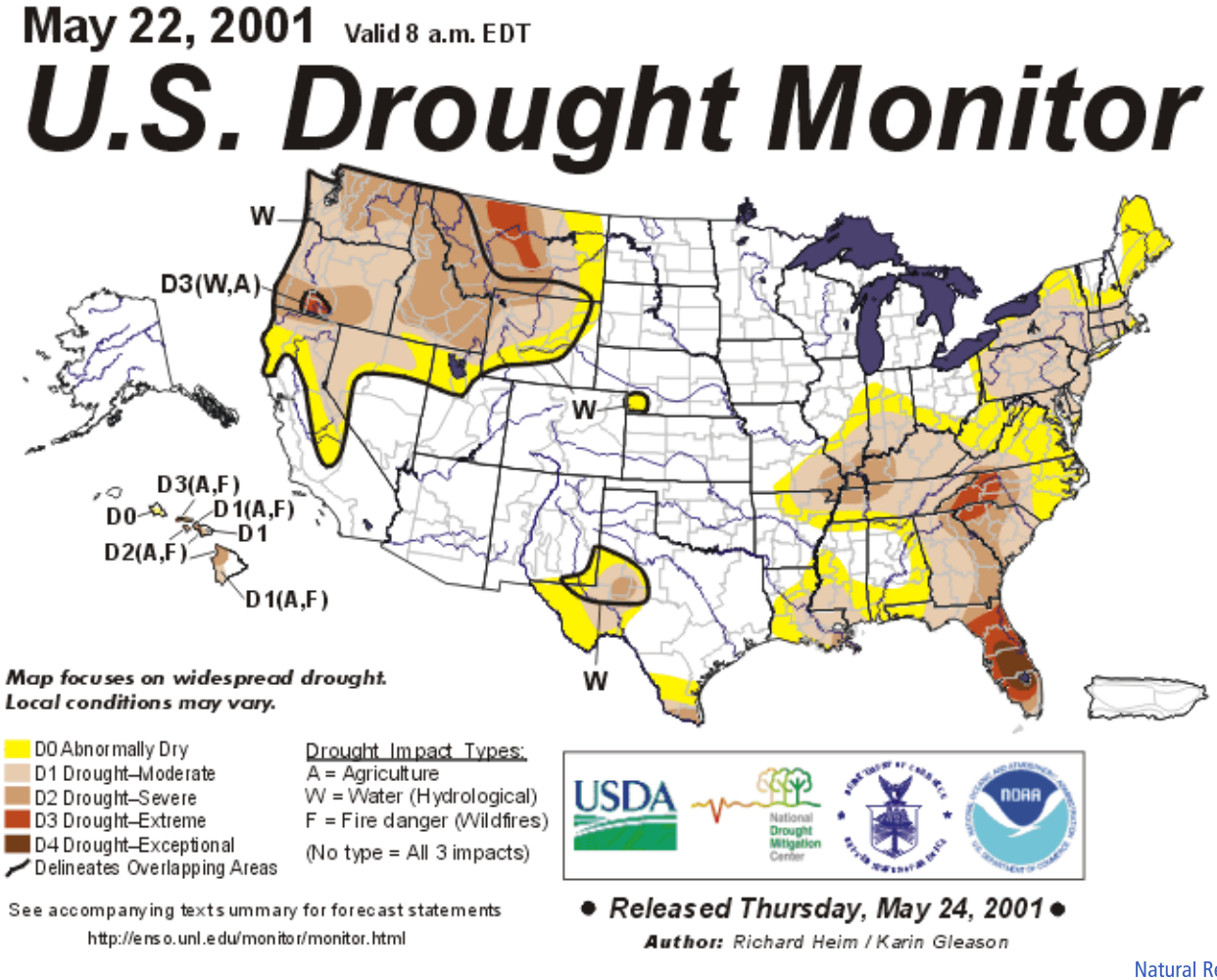

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In Conclusion

- Results are promising
- Managers are using the product - Internet availability
- Need more real-time data transmitted in SHEF to UCAN
- Weekly spatial analysis possible - PRISM technology
- Weekly WSF were produced in many Western basins
- Climate extremes more frequent and rapid shifts possible
- We'll be ready

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